

ABSTRACT OF THE DISCLOSURE

The present invention provides an aluminum alloy structural plate excelling in strength and corrosion resistance, in particular, resistance to stress corrosion cracking, and a method of manufacturing the aluminum alloy plate. This aluminum alloy structural plate includes 4.8-7% Zn, 1-3% Mg, 1-2.5% Cu, and 0.05-0.25% Zr, with the remaining portion consisting of Al and impurities, wherein the aluminum alloy structural plate has a structure in which grain boundaries with a ratio of misorientations of $3-10^\circ$ is 25% or more at the plate surface. The aluminum alloy structural plate is manufactured by: homogenizing an ingot of an aluminum alloy having the above composition; hot rolling the ingot; repeatedly rolling the hot-rolled product at 400-150°C so that the degree of rolling is 70% or more to produce a plate with a specific thickness, or repeatedly rolling the hot-rolled product at a material temperature of 400-150°C in a state in which rolls for hot rolling are heated at 40°C or more so that the degree of rolling is 70% or more to produce a plate material with a specific thickness; subjecting the plate material to a solution heat treatment at 450-500°C for five minutes or more; and cooling the resulting plate material at a cooling rate of 10°C or more.